

REMARKS

The Office Action mailed August 22, 2007 has been carefully considered.

Claims 11 through 13 and 18 through 20 have been rejected under 35 USC 103(a) over Applicant's admitted prior art in view of Abe et al, while Claims 14 through 17 and 21 through 23 have been rejected over Applicant's admitted prior art and Abe et al in view of Brown et al.

Claim 11 has been amended to recite that the cylindrical sleeve obtained by the process has greater circularity, as disclosed in the specification at page 13, lines 18-21.

The Office Action states that the preamble of claim 1 reflects the admitted prior art, the admitted prior art disclosing all of the claimed limitations except for passing the web between the two rollers where the gap between the two rollers is less than the thickness of the web, and goes on to state: "However, Abe et al teach to pass the web (9, Fig. 6) between two rollers (1, 2, Fig. 6) wherein the space (gap) between the two rollers is less than the thickness of the web... Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to pass the web prior to forming the cylindrical sleeve in the method of APA between the two rollers wherein the space (gap) between the two rollers is less than the thickness of the web as taught by Abe et al to improve the surface quality, such as smoothness and gloss of paper sheet".

In response to Applicant's argument that Abe et al does not teach a plastic or metal web, the Office Action states that "Examiner is relying on the secondary reference to show that it is known in the art to pass *the web* between the rollers having nip less than the thickness of the material to plastically deform it to enhance the appearance *and property* of the web" (emphasis added).

Applicant has emphasized "the web" because while Abe et al passes "a web" between rollers, it does not in any sense

disclose passing *the web of the invention* between rollers. Indeed, the process of Abe et al relates to the treatment of paper sheets to improve surface quality, not to improve plastic, metal, or combination sheets which are to be used to form a cylindrical skirt for tubes. The claimed invention does not recite passing any material between rollers for any purpose, but is directed to an improved process for forming a flexible tube skirt in which the web from which the tube skirt is to be formed is passed between rollers to improve the circularity of the cylindrical sleeve formed from the web.

Given the overall scope of the present claims, the only teaching which the invention and Abe et al have in common is that some material should be passed between rollers to produce some useful result. The other process steps in Abe et al and the invention are different, and the useful results are different.

According to the invention, the prior plastic deformation greatly improves the mechanical behavior of the sheet in its capacity to be shaped into a cylinder of circular section, as opposed to a drop-shaped section when it emerges from the shaping device. This greater capacity of the web for being shaped into a regular cylinder is due to the less frequent occurrence of later undulations on the edges of the web and to an elastic rigidity of the web that is more significant in the longitudinal direction and more homogenous in the transverse direction. The prior plastic deformation makes the stiffness of the web more uniform, and when embossing occurs, creates evenly distributed raised surfaces and/or depressions, increasing the rigidity of the web both in longitudinal and transverse directions.

The advantages of the claimed invention are established in Examples 1 and 2 of the present specification. In the table at the bottom of page 15, it can be seen that the ratio of the orthogonal diameters for an unembossed metalloplastic tube is 0.95, while the ratio of the orthogonal diameters for an

embossed tube is 0.99, which is much closer to round. Moreover, the rebound properties for the embossed tubes are much higher, as can be seen from the table on page 16.

Similar results are apparent from the tables on pages 17 and 19 representing Example 2 where the tube is a plastic tube.

Applicant has thus established that when used in conjunction with the formation of tubes, the passing of a planar plastic and/or metal web between moving rolls provides an entirely unexpected benefit, which is unrelated to the improvement in smoothness and gloss for a paper sheet, as taught by Abe et al.

Given the cited differences between Abe et al and the invention, Applicant submits that the rejection constitutes and impermissible hindsight reconstruction of the invention. Indeed, Abe et al was cited only because it teaches passing a web between rollers, not because it relates in any way to the process of forming a tube with a cylindrical skirt.

The Brown et al reference has been cited to show embossing and calendering paper bathroom tissue in a simultaneous operation, and also does not disclose or suggest embossing and calendering a plastic and/or metal web in conjunction of the formation of a tube.

Withdrawal of these rejections is accordingly requested.

In view of the foregoing remarks, Applicant submits that the present application is now in condition for allowance. An early allowance of the application is earnestly solicited.

Respectfully submitted,



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